subtropical vegetation on the coast and an alpine flora on the mountains of the interior; that during the period of refrigeration the fauna and flora were gradually expelled to Australasia through Tasmania, first the warmth-loving plants and animals, last the alpine or subantarctic forms; that a penultimate expansion of Antarctica reached New Zealand, but not Australia. By it an exchange operated between New Zealand and South America, though in the subsequent phase the gifts of Patagonia to Tasmania were not reciprocated.

Mathematical Society, June 13.—Dr. H. F. Baker, president, in the chair.—H. **Hilton**: Some properties of symmetric and orthogonal substitutions.—F. R. **Moulton**: Closed orbits of ejection and related periodic orbits.—W. H. **Young**: (1) A certain series of Fourier; (2) the Fourier series of bounded functions.—G. N. **Watson**: Some properties of the extended zeta-function.—H. P. **Hudson**: Curves of contact of any order on algebraic surfaces.

Paris.

Academy of Sciences, June 10.—M. Lippmann in the chair.—J. **Boussinesq**: The resistance met by an ellipsoid in slow uniform translations through a viscous liquid, calculated by an extension of the method previously successfully applied to slow movements of translation of the sphere.—Henry le **Chatelier**: The law of mass action. The fallacy in a recent criticism of Colson is pointed out, and the results recalculated for the dissociation of hydriodic acid, using the more accurate data of Bodenstein.—A **Haller** and Eug. **Benoist**: The action of sodium amide and alkyl halides upon benzoyltrimethylene.—S. A. S. the Prince of **Monaco**: Bathymetric map of the oceans.—El. **Metchnikoff** and Eug. **Wollman**: The view is advanced, contrary to the generally accepted view, that indol and its derivatives are toxic. An experimental study of diet has been made from the point of view of indol excretion, and the administration of an amylolytic bacterium suggested.—J. **Clairin**: The transformation of Imschenetsky.—Jean **Chazy**: The divergent asymptotic developments which represent the integrals of certain differential equations.—Ph. A. **Guye, J. Kovacs,** and E. **Wourtzel**: The weight of a normal litre of air at Geneva. The weight of a litre of dry, pure air taken at different places on the same day may vary by some tenths of a milligram.—A. **Pérard**: The measurement of the Johansson standard by an optical method. 1, 5, 25, 50, and 100 mm. standards were examined; in one case (100 mm.) the error was $0{\cdot}2\mu$, in five $0{\cdot}1\mu$, and in five $0{\cdot}0\mu$.—Albert **Colson**: Dissociation at constant volume and the law of mass action.—J. **Carvallo**: The law of Guldberg and Waage in the case of the dissociation of gases.—M. **Jouniaux**: Cryoscopy in camphor. For the cryoscopic constant K in camphor a mean value of 495 was obtained, leading to 8·24 cal. as the latent heat of fusion of camphor. The vapour pressures, combined with Clapyron's equation, lead to an identical value.—M. **Hannover**: Porous metals.—Daniel **Berthelot** and Henry **Gaudechon**: The function of wave-length in photochemical reactions. The analogy of the photo-chemistry of high frequency. Vibrations with the chemistry of high temperatures.—E. **Kohn-Abrest** and **Rivera-Maltes**: The influence of impurities on the activity of aluminium.—A. **Besson**: Observations on the hydrogen silicides.—H. **Baubigny**: Researches on the mode of decomposition of copper sulphite.—Camille **Matignon**: The spontaneous and progressive destruction of certain leaden objects. The presence of chlorides much facilitate the destruction of leaden antiquities by atmospheric action; the oxidation is partially, but not completely, prevented by a coating of transparent varnish.—Paul **Lebeau**: The decomposition of uranyl nitrate by heat.—G. **Darzens** and **Séjourne**: The esters of dichlorosuccinic acid and their stereochemical isomers.—Mme. **Ramart-Lucas**: Isopropyl-diphenylacetic acid.—G. **Bouchard**: The chromogenic materials and nitrogenous substances contained in fatty bodies.—P. **Lemoult**: The leucobases and colouring matters of diphenylethylene. The preparation of some amido-alkyl ethylene derivatives.—Marcel **Godchot** and Felix **Taboury**: Some cyclopentane glycols.—G. **André**: The evolution of the nitrogen, phosphorus, and sulphur in the course of the growth of barley.—L. **Camus** and E. **Gley**: The mechanism of the hæmolytic action of the serum of the eel.—**Ancel** and P. **Bouin**: The determinism of accouchement.—R. **Robinson**: The action of adrenaline and of choline on the determination of sex in some mammals.—Charles **Nicolle, L. Blaizot,** and E. **Conseil**: The etiology of recurrent fever and its mode of transmission.—Anna **Crzewina** and Georges **Bohn**: The effects of the inhibition of oxidation on the spermatozoids of *Strongylocentrotus lividus* and on the development.—Ph. **Dautzenberg**: The marine molluscs arising from the scientific expedition of M. A. Gruvel in western Africa, 1910–11.—Albert **Berthelot** and D. M. **Bertrand**: Researches on the intestinal flora. The isolation of a micro-organism capable of producing β-imidoazolethylamine from histidine.—L. **Massol**: The action of the ultra-violet rays upon starch.—Gabriel **Bertrand** and Arthur **Compton**: The supposed reversibility of the diastatic hydrolysis of salicin.—F. **Kerforne**: A clay facies of the lower Ordovician in Brittany.—J. **Vallot**: Hail and ice deposits on Mt. Blanc.—A. B. **Chauveau**: Observations on the atmospheric electricity during the eclipse of April 17, 1912.—M. **de Broglie**: The solar eclipse of April 17 and the penetrating radiation measured by the natural ionisation of the air in a closed vessel.—M. **Verschaffel**: A seismic movement which occurred during the night of May 30–31, 1912.—Louis **Roule**: The distribution of the bathypelagic fishes in the Atlantic Ocean and in the Mediterranean.

BOOKS RECEIVED.

Nature Study Note-Book. By G. H. Green. Pp. 63. (London: J. M. Dent and Sons, Ltd.) 6*d.* net.

A Laboratory Note-Book of Physics. By S. A. McDowall. In four sections. Pp. 20, 20–62, 64–112, 114–166. (London: J. M. Dent and Sons, Ltd.) 9*d.* net, 1*s.* net, 1*s.* net., and 1*s.* net respectively.

Neue Lehre vom zentralen Nervensystem. By Dr. E. Rádl. Pp. vii+496. (Leipzig: W. Engelmann.) 12 marks.

Handbuch der vergleichenden Physiologie. Edited by H. Winterstein. 22 Lief. Band I. Zweite Hälfte. Pp. 160. (Jena: G. Fischer.) 5 marks.

Cambridge County Geographies: Dumfriesshire. by Dr. J. K. Hewison. Pp. ix+176+map. Renfrewshire. By F. Mort. Pp. ix+177+maps. Perthshire. By P. Macnair. Pp. xii+180+maps. (Cambridge University Press.) Each 1*s.* 6*d.*

Examples in Numerical Trigonometry. By E. A. Price. Pp. v+90. (Cambridge University Press.) 2*s.*

Numerical Trigonometry. By J. W. Mercer. Pp. x+157. (Cambridge University Press.) 2*s.* 6*d.*

Gomera die Waldinsel der Kanaren. By W. May. Pp. ix+214. (Karlsruhe: G. Braun; London: Williams and Norgate.) 3 marks, or 3*s.* net.

Principles and Methods of Municipal Trading. By D. Knoop. Pp. xvii+409. (London: Macmillan and Co., Ltd.) 10*s.* net.

Across Australia. By Prof. B. Spencer and F. J. Gillen. 2 vols. Pp. xiv+254; xvii+515. (London: Macmillan and Co., Ltd.) 21*s.* net.

La Pression Osmotique et le Mécanisme de

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l'Osmose. By P. Girard. Pp. 18. (Paris: A. Hermann et Fils.) 1 franc.

Conférences sur les Alliages. By Rengade, Jolibois, and Broniewski. Pp. 36. (Paris: A. Hermann et Fils.) 2 francs.

Traité de Métallographie. By F. Robin. Pp. 464. (Paris: A. Hermann et Fils.) 30 francs.

Le Gout et l'Odorat. By J. Larguier des Bancels. Pp. 94. (Paris: A. Hermann et Fils.) 3.50 francs.

Les Parathyroides. By L. Morel. Pp. 344. (Paris: E. Hermann et Fils.) 10 francs.

Man and his Conquest of Nature. By Dr. M. I. Newbigin. Pp. viii+183. (London: A. and C. Black.) 2*s.*

Bees shown to the Children. By E. Hawks. Pp. xii+120+plates. (London and Edinburgh: T. C. and E. C. Jack.) 2*s.* 6*d.* net.

Yorkshire Type Ammonites. Edited by S. S. Buckman. Part vii. (London: W. Wesley and Son.) 3*s.* 6*d.* net.

Laboratory Instruction Sheets in Elementary Applied Mechanics. By Prof. A. Morley and W. Inchley. Pp. v+50. (London: Longmans and Co.) 1*s.* 3*d.* net.

The Physiology of Protein Metabolism. By Dr. E. P. Cathcart. Pp. viii+142. (London: Longmans and Co.) 4*s.* 6*d.* net.

Handbuch der bautechnischen Gesteinsprüfung. By Prof. J. Hirschwald. Zweiter Band. Pp. xvi+388–923. (Berlin: Gebrüder Borntraeger.) 32 marks.

Algebra for Beginners. By C. Godfrey and A. W. Siddons. Pp. xi+272. (Cambridge University Press.) 2*s.* 6*d.*

Mededeelingen van de Rijksopsporing van Delfstoffen. No. 4, Beiträge zur Kenntnis der marinen Mollusken im west-europäischen Pliocänbecken. By Dr. P. Tesch. Pp. iii+95+plate. (Freiberg in Sachsen: Craz and Gerlach.) 6 marks.

DIARY OF SOCIETIES.

THURSDAY, JUNE 20.

ROYAL SOCIETY, at 4.30.—An Investigation into the Life-history of *Cladothrix dichotoma* (Cohn): Dr. D. Ellis.—The Relation of Secretory and Capillary Pressure. I. The Salivary Secretion: Leonard Hill and M. Flack.—The Origin and Destiny of Cholesterol in the Animal Organism. Part IX. On the Cholesterol Content of the Tissues other than Liver of Rabbits under Various Diets and during Inanition: G. W. Ellis and J. A. Gardner.—A Note on the Protozoa from Sick Soils, with some Account of the Life-cycle of a Flagellate Monad: C. H. Martin.—Further Observations on the Variability of Streptococci in Relation to Certain Fermentation Tests, together with some considerations bearing upon its possible meaning: E. W. A. Walker.—The Chemical Action on Glucose of a Variety of *B. coli communis* (Escherich) obtained by cultivation in presence of a Chloroacetate (Preliminary notice): A. Harden and W. J. Penfold.—The Action of Enzymes on Hexosephosphate: V. J. Harding.—The Oxydases of *Cytisus Adami*: Prof. F. W. Keeble and Dr. E. F. Armstrong.

LINNEAN SOCIETY, at 8.—Les Euorthoptères des Seychelles: Señor Ignacio Bolivar.—Diptera: Loncheidæ, &c., of the Seychelles: C. G. Lamb.—The Coleoptera of the Seychelles: Hugh Scott.—Terrestrial Isopoda, particularly considered in relation to the Distribution of the Southern Indo-Pacific Species: the late Dr. G. Budde-Lund.—Selection of Coloured Drawings of Alpine Flowers by Mr. George Flemwell: H. Stuart Thompson.—On some Indian Jurassic Gymnosperms: Miss Nellie Bancroft.—The Ferns of the Seychelles and Aldabra: Carl Christensen.

MONDAY, JUNE 24.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—A Year's Exploration in the Sonora Desert, Mexico: Dr. Carl Lumholtz.

WEDNESDAY, JUNE 26.

CHEMICAL SOCIETY, at 8.30.—Cannizzaro Memorial Lecture: Sir William Tilden.

THURSDAY, JUNE 27.

ROYAL SOCIETY, at 4.30.—*Probable Papers*: Electrical Vibrations on a Thin Anchor Ring: Lord Rayleigh, O.M.—The Molecular Statistics of some Chemical Actions: Hon. R. J. Strutt.—Morphological Studies of Benzene Derivatives. III. Para-Dibromo-benzene-sulphonates (isomorphous) of the "Rare Earth" Elements—a Means of Determining the Directions of Valency in Tervalent Elements: Prof. H. E. Armstrong and E. H. Rodd.—Optical Rotatory Dispersion. Part I. The Natural and Magnetic Rotatory Dispersion in Quartz of Light in the Visible Region of the Spectrum: Dr. T. M. Lowry.—On the Apparent Change in Mass during Chemical Reaction: J. J. Manley.—On the Diurnal Variations of the Electric Waves occurring in Nature, and on the Propagation of Electric Waves round the Bend of the Earth: Dr. W. H. Eccles.—Report on the Total Solar Eclipse of April 28, 1911: Rev. A. L. Cortie, S. J.—And other papers.

FRIDAY, JUNE 28.

PHYSICAL SOCIETY, at 5.—Hysteresis Loss as affected by Previous Magnetic History: Prof. E. Wilson, B. C. Clayton, and A. E. Power.—The Efficiency of Generation of High-frequency Oscillations by means of an Induction Coil and Ordinary Spark Gap: Prof. G. W. O. Howe and J. D. Peattie.—Dielectric Hysteresis at Low Frequencies: Prof. W. M. Thornton.—The Resistance to the Flow of Water along a Capillary Soda Glass Tube at Low Rates of Shear: Dr. A. Griffiths and Miss C. H. Knowles.—Self-Demagnetisation of Steel: S. W. J. Smith and J. Guild.

FORTHCOMING CONGRESSES.

JUNE 19-26.—Optical Convention. London. President: Prof. Silvanus P. Thompson. Secretary: J. W. Gordon, 113 Broadhurst Gardens, Hampstead.

JULY 1-6.—South African Association for the Advancement of Science. Port Elizabeth. President: Dr. A. Theiler, C.M.G.

JULY 2-5.—Congress of the Universities of the Empire. London. Secretary: Dr. Alex Hill, University of London.

JULY 15-19.—Celebration of the 250th anniversary of the Royal Society. London.

JULY 24-30.—First International Eugenics Congress. London. President: Major Leonard Darwin. Secretary: Eugenics Education Society, 6 York Buildings, Adelphi.

JULY 25-28.—Congress of the Royal Institute of Public Health. Berlin. Address: Russell Square, W.C.

JULY 29-AUGUST 3.—Royal Sanitary Institute. York. Address: 90 Buckingham Palace Road, S.W.

AUGUST 5-10.—International Congress of Entomology. Oxford. President: Prof. E. B. Poulton. General Secretary: Dr. Malcolm Burr, c/o The Entomological Society of London, 11 Chandos Street, W.

AUGUST 22-28.—(i) International Congress of Mathematicians, and (ii) International Commission on Mathematical Teaching. President: Prof. Klein. Treasurer: Sir J. Larmor, F.R.S., St. John's College, Cambridge.

SEPTEMBER (first week).—International Congress of Anthropology and Prehistoric Archæology. Geneva.

SEPTEMBER 4-11.—British Association. Dundee. President: Prof. E. A. Schäfer, F.R.S. Assistant Secretary: O. J. R. Howarth, Burlington House, London, W.

SEPTEMBER 4-13.—International Congress of Applied Chemistry. Washington, D.C. President: Dr. W. H. Nichols. Secretary: Dr. B. G. Hesse, 25 Broad Street, New York City, U.S.A.

SEPTEMBER 8-11.—Société Helvétique des Sciences Naturelles. Altdorf. President: Dr. P. B. Huber. Secretaries: Prof. J. Brülisauer (German) and M. P. Morand Meyer (French), Altdorf.

SEPTEMBER 23-28.—International Congress on Hygiene and Demography. Washington. President: Dr. H. P. Walcott. Secretary-General: Dr. J. S. Fulton, Army Medical Museum, Washington, D.C.

CONTENTS.

PAGE
Introductions to Biology 393
Modern Mathematics for Teachers. By **G. B. M.** 395
Impressions of a Guiana Forest 396
Body and Soul 396
Our Bookshelf 397
Letters to the Editor:—
The Effect of Grass on Plants.—**Spencer Pickering, F.R.S.** 399
The Local Races of Burchell's Zebra.—**R. I. Pocock, F.R.S.** 399
Boulder Clay in Essex.—**Rev. Dr. A. Irving** . . . 399
Campaign against Rats.—**Walter Hutton** 399
The Progress of Radiotelegraphy. By **Dr. J. Erskine-Murray** 400
Fabre and the Insect World. (*Illustrated.*) 401
Production of Synthetic Rubber 402
The Transmission of Sleeping Sickness 402
Notes 403
Our Astronomical Column:—
Constitution of the Milky Way 407
The Solar Eclipse of April 17 407
Magnitudes of Nova Geminorum No. 2 408
Designations of Newly-discovered Variable Stars . . 408
Some Recent Work in Palæontology. By **G. A. J. C.** 408
The Isle of Wight Bee Disease 410
The Kinematograph in Science Teaching 410
Icebergs and their Location in Navigation. (*Illustrated.*) By **Prof. Howard T. Barnes, F.R.S.** . . . 411
University and Educational Intelligence 414
Societies and Academies 415
Books Received 417
Diary of Societies 418
Forthcoming Congresses 418

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